

Welcome to DialogClassic Web(tm)

Dialog level 03.02.02D
Last logoff: 18oct03 00:06:55
Logon file405 19oct03 15:18:49

*** ANNOUNCEMENT ***

--File 654 - US published applications from March 15, 2001 to the present are now online. Please see HELP NEWS 654 for details.

--File 581 - The 2003 annual reload of Population Demographics is complete. Please see Help News581 for details.

--File 990 - NewsRoom now contains February 2003 to current records.
File 992 - NewsRoom 2003 archive has been newly created and contains records from January 2003. The oldest months's records roll out of File 990 and into File 992 on the first weekend of each month.
To search all 2003 records BEGIN 990, 992, or B NEWS2003, a new OneSearch category.

--Connect Time joins DialUnits as pricing options on Dialog.
See HELP CONNECT for information.

*** --SourceOne patents are now delivered to your email inbox as PDF replacing TIFF delivery. See HELP SOURCE1 for more information.

--Important news for public and academic libraries. See HELP LIBRARY for more information.

--Important Notice to Freelance Authors--
See HELP FREELANCE for more information

NEW FILES RELEASED

***World News Connection (File 985)
***Dialog NewsRoom - 2003 Archive (File 992)
***TRADEMARKSCAN-Czech Republic (File 680)
***TRADEMARKSCAN-Hungary (File 681)
***TRADEMARKSCAN-Poland (File 682)

UPDATING RESUMED

RELOADED

***Population Demographics -(File 581)
***CLAIMS Citation (Files 220-222)

REMOVED

*** DIALOG HOMEBASE(SM) Main Menu ***

Information:

1. Announcements (new files, reloads, etc.)
2. Database, Rates, & Command Descriptions
3. Help in Choosing Databases for Your Topic
4. Customer Services (telephone assistance, training, seminars, etc.)
5. Product Descriptions

Connections:

6. DIALOG(R) Document Delivery
7. Data Star(R)

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/H = Help

/L = Logoff

/NOMENU = Command Mode

Enter an option number to view information or to connect to an online service. Enter a BEGIN command plus a file number to search a database (e.g., B1 for ERIC).

?

B IGOR705

>>> 77 does not exist

>>>1 of the specified files is not available

19oct03 15:19:09 User268082 Session D46.1

\$0.00 0.225 DialUnits FileHomeBase

\$0.00 Estimated cost FileHomeBase

\$0.07 INTERNET

\$0.07 Estimated cost this search

\$0.07 Estimated total session cost 0.225 DialUnits

SYSTEM:OS - DIALOG OneSearch

File 2:INSPEC 1969-2003/Oct W2

(c) 2003 Institution of Electrical Engineers

***File 2: Alert feature enhanced for multiple files, duplicates removal, customized scheduling. See HELP ALERT.**

File 9:Business & Industry(R) Jul/1994-2003/Oct 17

(c) 2003 Resp. DB Svcs.

File 15:ABI/Inform(R) 1971-2003/Oct 18

(c) 2003 ProQuest Info&Learning

***File 15: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.**

File 16:Gale Group PROMT(R) 1990-2003/Oct 17

(c) 2003 The Gale Group

***File 16: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.**

File 20:Dialog Global Reporter 1997-2003/Oct 19

(c) 2003 The Dialog Corp.

File 35:Dissertation Abs Online 1861-2003/Sep

(c) 2003 ProQuest Info&Learning

File 65:Inside Conferences 1993-2003/Oct W2

(c) 2003 BLDSC all rts. reserv.

File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Sep

(c) 2003 The HW Wilson Co.

File 148:Gale Group Trade & Industry DB 1976-2003/Oct 20

(c)2003 The Gale Group

***File 148: Alert feature enhanced for multiple files, duplicate removal, customized scheduling. See HELP ALERT.**

File 160:Gale Group PROMT(R) 1972-1989

(c) 1999 The Gale Group

File 233:Internet & Personal Comp. Abs. 1981-2003/Jul

(c) 2003, EBSCO Pub.

File 256:SoftBase:Reviews,Companies&Prods. 82-2003/Sep

(c)2003 Info.Sources Inc

File 275:Gale Group Computer DB(TM) 1983-2003/Oct 17

(c) 2003 The Gale Group

File 347:JAPIO Oct 1976-2003/Jun(Updated 031006)

(c) 2003 JPO & JAPIO

***File 347: JAPIO data problems with year 2000 records are now fixed.**
Alerts have been run. See HELP NEWS 347 for details.

File 348:EUROPEAN PATENTS 1978-2003/Oct W02

(c) 2003 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20031016,UT=20031009

(c) 2003 WIPO/Univentio

File 474:New York Times Abs 1969-2003/Oct 17

(c) 2003 The New York Times

File 475:Wall Street Journal Abs 1973-2003/Oct 17

(c) 2003 The New York Times

File 476:Financial Times Fulltext 1982-2003/Oct 18

(c) 2003 Financial Times Ltd

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13

(c) 2002 The Gale Group

***File 583: This file is no longer updating as of 12-13-2002.**

File 610:Business Wire 1999-2003/Oct 19

(c) 2003 Business Wire.

***File 610: File 610 now contains data from 3/99 forward.**

Archive data (1986-2/99) is available in File 810.

File 613:PR Newswire 1999-2003/Oct 19

(c) 2003 PR Newswire Association Inc

***File 613: File 613 now contains data from 5/99 forward.**

Archive data (1987-4/99) is available in File 813.

File 621:Gale Group New Prod.Annou.(R) 1985-2003/Oct 20

(c) 2003 The Gale Group

File 624:McGraw-Hill Publications 1985-2003/Oct 17

(c) 2003 McGraw-Hill Co. Inc

***File 624: Homeland Security & Defense and 9 Platt energy journals added**

Please see HELP NEWS624 for more

File 634:San Jose Mercury Jun 1985-2003/Oct 17

(c) 2003 San Jose Mercury News

File 636:Gale Group Newsletter DB(TM) 1987-2003/Oct 17

(c) 2003 The Gale Group

File 810:Business Wire 1986-1999/Feb 28

(c) 1999 Business Wire

File 813:PR Newswire 1987-1999/Apr 30

(c) 1999 PR Newswire Association Inc

Set Items Description

?

S MERGERS (20N) ACQUISITIONS (20N) (MARKET (2N) POWER) (20N) (ELECTRIC (2N) POWER (2
>>>Unmatched parentheses

?

S MERGERS (20N) ACQUISITIONS (20N) (MARKET (2N) POWER) (20N) (ELECTRIC (2N) POWER (2
Processed 10 of 28 files ...

Processing

Completed processing all files

3973682 MERGERS

4853705 ACQUISITIONS

19024561 MARKET

7976101 POWER

4011777 ELECTRIC

7976101 POWER

19473529 INDUSTRY

875715 JOSEPH

422679 DIAMOND

S1 0 MERGERS (20N) ACQUISITIONS (20N) (MARKET (2N) POWER)

(20N) (ELECTRIC (2N) POWER (2N) INDUSTRY) (20N) (JOSEPH
(3N) DIAMOND)

?

S CONTRACT??? (20N) (POWER (2N) TRANSFER)

Processing

Processed 10 of 28 files ...

Processing

Processed 20 of 28 files ...

Completed processing all files

8013382 CONTRACT???

7976101 POWER

2962309 TRANSFER

S2 502 CONTRACT??? (20N) (POWER (2N) TRANSFER)

?

S S2 AND (FLOW (2N) GATE?)

>>>Unmatched parentheses

?

S S2 AND (FLOW (2N) GATE?)

Processed 20 of 28 files ...

Processing

Completed processing all files

502 S2

3224974 FLOW

1707784 GATE?

3299 FLOW(2N)GATE?

S3 8 S2 AND (FLOW (2N) GATE?)

?

T S3/KWIC/1-8

3/KWIC/1 (Item 1 from file: 349)

DIALOG(R) File 349: (c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Detailed Description

... of transmitting electrical power, particularly AC electrical power
has significant congestion paths, known herein as **flow gates** .

There has been little economic incentive to increase the transmission
capacity through the **flow gates** , in part because there is no coherent
policy provided fair and predictable economic return to...market to trade
transfer capability between

70

users. Because of the linear nature of AC **power transfer** throughout
an AC **power** network, these **transfer** rights can be linearly
accumulated to insure the **contracted** transfers are physically feasible
in satisfying the overall flowgate constraints of the AC power network.

3/KWIC/2 (Item 2 from file: 349)

DIALOG(R) File 349: (c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Detailed Description

... of transmitting electrical power, particularly AC electrical power has significant congestion paths, known herein as **flow gates**. There has been little economic incentive to increase the transmission capacity through the **flow gates**, in part because there is no coherent policy provided fair- and predictable economic return to...a market to trade transfer capability between users.

Because of the linear nature of AC **power transfer** throughout an AC **power** network, these **transfer** rights can generally be linearly accumulated to insure the **contracted** transfers are physically feasible in satisfying the overall flowgate constraints of the AC power network...

3/KWIC/3 (Item 3 from file: 349)

DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Detailed Description

... power so that wind power-based units of electrical power may be available for forward **contracts** as part of a "renewable exchange" that enables the **transfer** of wind **power** units (i.e., a predetermined amount of power), perhaps coupled or guaranteed power ...the hydroelectric plant 51 1 so that 0 the processor contained therein can adjust the **flow gates** in the hydroelectric plant. This control is done in real time so that the an...

3/KWIC/4 (Item 4 from file: 349)

DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Detailed Description

... power so that wind power-based units of electrical power may be available for forward **contracts** as part of a "renewable exchange" that enables the **transfer** of wind **power** units (i.e., a 2 5 predetermined amount of power), perhaps coupled or guaranteed power...the hydroelectric plant 5 1 1 so that the processor contained therein can adjust the **flow gates** in the hydroelectric plant. This 3 0 control is done in real time so that...

3/KWIC/5 (Item 5 from file: 349)

DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Detailed Description

... different transformers may have differing transformer capacity limits. These constrained flow elements are called **flow gates**. In the last few years the importance of **flow**

gates has begun to emerge through the actions of NERC, which has been responsible for building a model estimating **flow gate** impact, which can be downloaded from their web site.

A **flow gate** of a given AC power network will refer herein to a collection of at least...

...of that network.

All lines have maximum safe carrying capacities and thus could be considered **flow gates**, of a sort. However, historical congestion analysis of specific AC power networks reveals that only a small number of **flow gates** account for almost all congestion problems. Such **flow gates** will be herein referred to as significant **flow gates**.

The associated AC power transfer across a given **flow gate** is additive due to the super positioning effects previously discussed. Thus in sending 1 00 megawatts along a path, the transmission may have a 1 0% impact on the **flow**

6

gate, putting 10 megawatts on the **flow gate**. A second generator may have a 5% impact on that **flow gate**. Generating 100 megawatt at the second generator would add 5 megawatt across the **flow gate**.

Figure 1 depicts an exemplary AC power network based upon contemporary AC power technology as...

...1 0. Line 11 2 runs between node I 1 0 and node 120.

2o **Flow gate** A 210 is a constraint on the network. Lines 32, 34 and 42 are constrained by **flow gate** A 210 by a total maximum safe carrying capacity, in that these lines have transmission capacity limitations which are easily overloaded when this maximum safe carrying capacity is exceeded.

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Flow gate B 220 is a constraint on the network. Lines 42 and 44 are constrained by **flow gate** B 220. These lines are also constrained by a total maximum safe carrying capacity due...

...as their

proximity at some critical junction of the system, such as a mountain pass.

Flow gate C 230 is a constraint on the network. Lines 52 and 62 are constrained by **flow gate** C 230 to a total maximum safe carrying capacity.

Figure 2 depicts a list of associated AC power functions for each **flow gate** of a collection of **flow gates** for each of the busses of the various nodes of the exemplary AC power network...

...values in the first row of Figure 2 indicate the ratio of power transferred across **flow gates** A, B, and C. If the power is generated at Bus 1 1 and consumed

...an essentially linear effect on all transmission lines in the network, and consequently impact all **flow gates** within that network to some extent.

This contract path system of scheduling power transmission reserves...

...making up the direct path. It often occurs that some constraint, occurring across a significant **flow gate** off that direct path, actually limits the transmission capability on the direct path.

The contract...to purchase separately transmission from A to C. this is because there might be some **flow gate** constraint which would not be met in the two separate paths which would be triggered...

...path becomes over-constrained, cuts are issued to compensate. The central operator acts, because a **flow gate** will attempt to exceed its safe carrying capacity, forbidding transmission often across apparently irrelevant paths...

...commitment decisions. Nor can price risks be easily hedged.

NERC has developed a methodology addressing **flow gates** to some extent.

2o This is discussed in a document entitled "Discussion Paper on Aligning ...

...shift to a system of reserving and scheduling transmission based on actual use of congested **flow gates**, which they called the 13 FLOWBAT method. Their proposal suffers from a serious omission, it does not address the issue of allocating **flow gate** capacity when demand exceeds supply. By their silence on this issue, it appears that they...

...case called Transaction Participation Functions (TPFs).

These distribution functions refer to transmission paths rather than **flow gates**.

GAPP attempts to align compensation paid by transmission users with actual power flows. However, GAPP...the physics of AC power networks. Further,

since transmission rights are predominantly constrained by significant **flow gates**, what is needed should account for the effect on the significant **flow**

gates for each contracted transmission. A method and mechanism is needed

for trading generation and transmission...the prior art;

Figure 2 depicts a list of associated AC power functions for each **flow gate** of a collection of **flow gates** for each of the busses of the various nodes of the

exemplary AC power network...computer showing an ordering screen for hourly time interval based market intervals for a specific **flow gate** market in accordance with certain embodiments of the invention;

Figure 25 depicts a flowchart...are not limited to acoustic interfaces to humans, audio and visual identification portals to the

contracting of AC power transfer regarding **flow gates**, encoding and decoding

mechanisms used in long distance communication and interfaces to recording to devices of agreed **contracts** .
A program step as used herein refers to instructions in a form executable or inferentially...

...product type 1 1 1 0 of the market interval is described as an Energy product type 1110. The location 1112 is a flow gate of the **flow gate** collection of a first AC power network contained in the 20 electrical power grid. Note that **flow gates** can represent a congestion constraint across more than one transmission line, and may not have a specific first node to second node description.

Such embodiments of the invention of a **flow gate** market interval are advantageous in providing a market to trade transfer capability between 39

users. Because of the linear nature of AC **power transfer** throughout an AC **power** network, these **transfer** rights can be linearly accumulated to insure the **contracted** transfers are physically feasible in satisfying the overall flowgate constraints of the AC power network... networks indicates each AC power network contained in the electrical power grid further contains a **flow gate** collection of **flow gates** . Each **flow gate** location being either from an associated first node of the AC power network to an...

...in the case of a collection of constrained transmission lines, will be denoted by a **flow gate** designator. An AC power transfer amount from node1 to node2 produces an amount of AC power transfer across the **flow gate** as essentially an associated linear, skewsymmetric function of the amount from node1 to node2, for each of the **flow gates** of the **flow gate** collection. For each of the **flow gates** of the **flow gate** collection, there is at least one market interval in the market interval collection of AC power transfer product type with the **flow gate** location.

Each validated order of the validated order collection with the AC power transfer product...

...node to the second node may be further comprised of a validated order of the **flow gate** associated market interval. The amount ordered for that **flow gate** is essentially the associated linear, skew-symmetric function of the amount from the first node to the second node, for each of the **flow gates** of the **flow gate** collection.

Note that there may be a price associated with each validated order of the AC power transfers of the **flow gates** . There may be a price associated with the AC power transfer from the first node...of an AC power network. Assume that AC power network has a collection of three **flow gates** . A validated order for an AC power transfer amount from node1 to node2 may contain validated orders for an associated amount for each **flow gate** of the **flow gate** collection.

Each of the **flow gate** validated orders may contain prices for their respective **flow gate** . The agreed amount would be calculated based upon the associated amounts and pricing of the **flow gates** . Alternatively, all validated orders may have a price associated with them.

These operations may be...computer showing an ordering screen for hourly time interval based market intervals for a specific **flow gate** market in accordance with certain embodiments of the invention.

The displayed information 4200 includes a variety of fields, including field 4202, where a specific **flow gate** or intertie may be selected. Immediately 20 below that field is a field which specifies...
...entries from 1 to 24, indicating the hourly AC power transfer markets 4204 in the **flow gate** location "COCOPP Unit 1" 4202. Consider the row labeled by the hour 4208 ending at...

...row displays the market state of the market interval with AC power transfer product type, **flow gate** 4202 location and hour time interval ending at 1:00 for May 10, 1999. The...

3/KWIC/6 (Item 6 from file: 349)
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:
Detailed Description

Detailed Description

... that different transformers may have differing transformer capacity limits.

These constrained flow elements are called **flow gates** . In the last few years the importance of **flow gates** has begun to emerge through the actions of NERC, which has been responsible for building a model estimating **flow gate** impact, which can be downloaded from their web site.

io A **flow gate** of a given AC power network will refer herein to a collection of at least...

...of that network.

All lines have maximum safe carrying capacities and thus could be considered **flow gates** , of a sort. However, historical congestion analysis of specific AC power networks reveals that only a small number of **flow gates** account for almost all congestion problems. Such **flow gates** will be herein referred to as significant **flow gates** .

The associated AC power transfer across a given **flow gate** is additive due to the super positioning effects previously discussed. Thus in sending 100 megawatts along a path, the transmission may have a 10% impact on the **flow gate** , putting 10 megawatts on the **flow gate** . A second generator may have a 5% impact on that **flow gate** . Generating 100 megawatt at the second generator would add 5 across the **flow gate** .

Figure 1 depicts an exemplary AC power network based upon contemporary AC power technology as...between node 100 and node 110. Line 112 runs between node 110 and node 120.

Flow gate A 210 is a constraint on the network. Lines 32, 34 and 42

are
constrained by **flow gate** A 210 by a total maximum safe carrying
capacity, in
that these lines have transmission capacity limitations which are easily
overloaded when this maximum safe carrying capacity is exceeded.

Flow gate B 220 is a constraint on the network. Lines 42 and 44 are
constrained by **flow gate** B 220. These lines are also constrained by a
total
maximum safe carrying capacity due...

...as their
proximity at some critical junction of the system, such as a mountain
pass.

Flow gate C 230 is a constraint on the network. Lines 52 and 62 are
constrained by **flow gate** C 230 to a total maximum safe carrying
capacity.

Figure 2 depicts a list of associated AC power functions for each **flow
gate** of a collection of **flow gates** for each of the busses of the
various nodes of the exemplary AC power network...

...an essentially linear effect on all
transmission lines in the network, and consequently impact all **flow
gates** within that network to some extent.

This contract path system of scheduling power transmission reserves...
making up the direct path. It often occurs that some constraint,
occurring across a significant **flow gate** off that direct path,
actually limits the transmission capability on the direct path.

9
n6ar...

...to
purchase separately transmission from A to C. This is because there might
be some **flow gate** constraint which would not be met in the two
separate paths
which would be triggered...

...are issued across apparently irrelevant contracted
paths to compensate. The central operator acts, because a **flow gate**
will
overflow, forbidding transmission often across apparently irrelevant
paths to compensate.

10

SUBSTITUTE SHEET (RULE226611...

...that could contribute to market efficiency and price stability.

NERC has developed a methodology addressing **flow gates** to some
extent.

This is discussed in a document entitled "Discussion Paper on Aligning
Transmission...

...shift to a system of reserving and scheduling transmission
based on actual use of congested **flow gates**, which they called the
FLOWBAT method. Their proposal suffers from a serious omission, it does

not address the issue of allocating **flow gate** capacity when demand exceeds supply. By their silence on this issue, it appears that they... case called Transaction Participation Functions (TPFs).

These distribution functions refer to transmission paths rather than **flow gates**.

GAPP attempts to align compensation paid by transmission users with actual power flows. However, GAPP...

...the physics of AC power networks. Further, since transmission rights are predominantly constrained by significant **flow gates**, what is needed should account for the effect on the significant **flow gates** for each contracted transmission. A method and mechanism is needed for planning the operations of...the prior art; Figure 2 depicts a list of associated AC power functions for each **flow gate** of io a collection of **flow gates** for each of the busses of the various nodes of the exemplary AC power network...are not limited to acoustic interfaces to humans, audio and visual identification portals to the **contracting** of AC **power transfer** regarding **flow gates**, encoding and decoding mechanisms used in long distance communication and interfaces to recording devices of agreed **contracts**.

A program step as used herein refers to instructions in a form that either by...

3/KWIC/7 (Item 7 from file: 349)
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:
Claims

Claim

... of said AC power transfer collection on each of said flow gates of said flow **gate** collection comprises;
a program code segment supporting said sum of said associated AC 1 5...

...AC power transfer collection satisfying said associated maximum safe carrying capacity on each of said **flow gates** of said **flow gate** collection.

29 The program operating system of Claim 27,
wherein each of said AC power transfers of said AC **power transfer** collection is to take place over a first time interval; and
wherein said program code segment supporting **contracting** said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection on each of said **flow gates** of said **flow gate** collection comprises;
a program code segment supporting **contracting** said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection to take place at least over at least said first time interval on each of said **flow gates** of said **flow gate** collection.

30 The program operating system of Claim 27,
wherein each of said AC power...

...to a second node of said AC power network; and
said program code segment supporting **contracting** said sum of said
associated AC **power transfer** for each of said AC power transfers of
said AC **power transfer** collection on each of said **flow gates** of
said **flow gate** collection
comprises
q17
a program code segment essentially calculating an amount of energy of
said associated AC power transfer on each of said **flow gates** of said
flow gate collection as essentially an associated linear,
skew-symmetric function of said associated amount of energy...
...associated second node.

31 The program operating system of Claim 25,
wherein each of said **flow gates** of said **flow gate** collection is a
significant **flow gate** of said AC power network.

32 The program operating system of Claim 25,
wherein each significant **flow gate** of said AC power network is a
flow gate in said **flow gate** collection.

33 The program operating system of Claim 25,
wherein said program code segment supporting **contracting** for said AC
power transfer on said AC power network further comprises;
1 5 a program code segment supporting **contracting** for said AC **power**
transfer on said AC power network to create an agreed **contract** by a
first party to own AC **power transfer** trading rights with associated
AC power transfers on
each of said **flow gates** of said **flow gate** collection; and
a program code segment supporting enabling said first party to further
contract to sell said first party owned AC **power transfer** trading
rights.

34 The program operating system of Claim 33,
wherein each of said **flow gates** of said **flow gate** collection has
an
associated maximum safe carrying capacity; and
further comprising a program code segment supporting scheduling said
AC **power transfer** for said agreed **contract** comprising;
a program code segment supporting determining whether said associated
AC **power transfer** of said **flow gate** of said **flow gate**
collection satisfies said associated maximum safe carrying capacity of
said **flow gate** for each of said **flow**
gates of said **flow gate** collection; and
a program code segment supporting approving said AC power transfer
whenever said associated AC power transfer of said **flow gate**
satisfies said maximum safe carrying capacity for each said **flow gates**
of said **flow gate** collection.

35 The program operating system of Claim 34,
wherein performing said program code segment supporting enabling said
first party to further **contract** to sell said first party owned AC
power transfer trading rights occurs before performing said program
code segment supporting scheduling said AC **power transfer** for said
agreed **contract**.

36 The program operating system of Claim 34,
wherein said agreed **contract** by said first party to own said AC **power**

transfer trading rights is to take place over a first time interval;
and
wherein performing said program code segment supporting scheduling
said AC **power transfer** for said agreed **contract** occurs before said
first time I 0 interval.

37 The program operating system of Claim 36,
wherein determining whether said associated AC power transfer of said
flow gate of said **flow gate** collection satisfies said associated
maximum safe carrying capacity of said **flow gate** for each of said
flow gates of said **flow gate**
1 5 collection further comprises;
determining whether said associated AC power transfer of said **flow**
gate
of said **flow gate** collection satisfies said associated maximum safe
carrying capacity of said **flow gate** for each of said **flow gates**
of said **flow gate** collection
over said first time interval; and
wherein approving said AC power transfer whenever said associated A C
power transfer of said **flow gate** satisfies said maximum safe carrying
capacity for
each of said **flow gates** of said **flow gate** collection further
comprises;
approving said AC power transfer over said first time interval whenever
said associated AC power transfer of said **flow gate** satisfies said
maximum safe 2 5 carrying capacity for each said **flow gates** of said
flow gate collection over said first time interval.

38 The program operating system of Claim 37, further comprising:
a program code segment supporting **contracting** for an AC **power**
transfer
collection of at least one AC **power transfer** to create an agreed
contract by a first
party to own AC **power transfer** trading rights with associated AC
power
transfers on each of said **flow gates** of said **flow gate** collection
further comprises;
a program code segment supporting **contracting** for a sum of associated
AC power transfers for all AC power transfers of said AC **power**
transfer
collection to create a **contract** for an associated AC **power transfer**
for said collection of AC power transfers for each of said **flow gates**
of said **flow gate** collection.
. The program operating system of Claim 38,
wherein each of said AC power transfers...

...to said second node of said AC power network;
wherein a program code segment supporting **contracting** for a sum of
associated AC power transfers for all AC power transfers of said AC
power transfer collection to create a **contract** for an associated AC
power transfer for said collection of AC power transfers for each of
said **flow gates** of said **flow gate**
collection comprises;
a program code segment calculating each of said associated AC power
transfers on said **flow gate** of said AC power transfer has an amount
of energy as an essentially linear, skew...

...node to said associated second node of said AC power transfer of each of
said **flow gates** of said **flow gate** collection.
1 5 40. The program operating system of Claim 33,

wherein said program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights further comprises;
a program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights for said associated AC **power transfer** for a first of said **flow gates** of said **flow gate** collection.

41 The program operating system of Claim 40,
wherein said program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights further comprises;
a program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights for said associated AC **power transfer** for each of said **flow gates** of said **flow gate** collection.

42 The program operating system of Claim 33,
wherein said first party is a...

...by said first party to act on behalf of said first party with respect to **contracting** said AC **power transfer** .

45 The program operating system of Claim 25,
wherein said computing system is further comprised...

...of said server computers of said server system; and
wherein said program code segment supporting **contracting** said A C **power transfer** on said AC power network further comprises;
1 5 a program code segment residing in...

...received stimulus stream and said received server stream; and
wherein said program code segment supporting **contracting** said A C **power transfer** on said AC power network further comprises;
a program code segment supporting communicating via said...

...stream.

47 The program operating system of Claim 46,
wherein said program code segment supporting **contracting** AC **power transfer** on said AC power network further comprises;
53
a program code segment supporting operating a...

...trading floor
containing a market interval for trading AC power transfer for each of said **flow gates** of said **flow gate** collection further comprising;
a program code segment supporting transforming said received server delivery stream into...

...one bid order and at least one ask order; and
a program code segment supporting **contracting** AC **power transfer** on said AC power network to create an agreed **contract** based upon a first of said bid orders of said order collection and ...a collection comprising a bid type and an ask type;

wherein program code segment supporting **contracting** said AC power
1 5 **transfer** on said AC power network to create an agreed **contract**
further comprises
a program code segment supporting **contracting** said AC power **transfer**
on
said AC power network to create an agreed **contract** based upon a first
bid type order of said validated orders of said validated order...

...of said validated order collection.

49 The program operating system of Claim 48,
wherein supporting **contracting** for said AC power **transfer** on said A
C
power network to create an agreed **contract** by a first party to own AC
power transfer trading rights with associated AC power transfers on
each of said **flow**
gates of said **flow gate** collection further comprises;
a program code segment supporting **contracting** for said AC power
transfer on said AC power network to create an agreed **contract** by a
first party to own AC power **transfer** trading rights with associated
AC power transfers on each of said **flow gates** of said **flow gate**
collection based upon a first bid type order of said validated orders of
said validated...

...operating system of Claim 48,
wherein at least one market interval is associated with each **flow gate**
of said **flow gate** collection.

51 The program operating system of Claim 50,
5A0,
wherein said server system is...

...computing system supporting program operating system of program
io code segments with program code segments **contracting** an AC power
transfer on an AC power network with a **flow gate** collection
containing at least one **flow**
gate , comprised of:
at least one computer, each of said computers in said computing system
coupled...

...in said computing
system;

wherein said program operating system contains a program code
segment supporting **contracting** an AC power **transfer** on said AC
power

2o network further comprising;

a program code segment supporting **contracting** an associated AC power
transfer on each of said **flow gates** of said **flow gate**
collection.

53 A computing system of Claim 52,

wherein said program code segment supporting **contracting** for said AC
power transfer on said AC power network further comprises;

a program code segment supporting **contracting** for said AC power
transfer on said AC power network to create an agreed **contract** by a
first party to own AC power **transfer** trading rights with associated
AC power transfers on
each of said **flow gates** of said **flow gate** collection; and

a program code segment supporting enabling said first party to further
contract to sell said first party-owned AC power **transfer** trading
rights.

54 A computing system of Claim 53,
wherein each of said **flow gates** of said **flow gate** collection has
an
associated maximum safe carrying capacity; and
said program operating system further containing a program code
segment supporting scheduling said **AC power transfer** for said agreed
contract
comprising;
a program code segment supporting determining whether said associated
AC power transfer of said **flow gate** of said **flow gate**
collection satisfies said associated maximum safe carrying capacity of
said **flow gate** for each of said **flow**
gates of said **flow gate** collection; and
a program code segment supporting approving said **AC power transfer**
whenever said associated **AC power transfer** of said **flow gate**
satisfies said maximum safe carrying capacity for each said **flow gates**
of said **flow gate** collection.

55 A computing system of Claim 54, further comprised of:
a client computer collection...

...of said server computers of said server
system; and
wherein said program code segment supporting **contracting** said **A C**
power transfer on said **AC power network** further comprises
a program code segment residing in said computer...
...received stimulus stream and said received server stream; and
wherein said program code segment supporting **contracting** said **A C**
power transfer on said **AC power network** further comprises;
57P
a program code segment supporting communicating via...delivery stream.

57 A computing system of Claim 56,
wherein said program code segment supporting **contracting AC power**
transfer on said **AC power network** further comprises;
a program code segment supporting operating a virtual trading floor
containing a market interval for trading **AC power transfer** for each of
said **flow**
gates of said **flow gate** collection further comprising
a program code segment supporting transforming said received server
i o delivery...

...one bid order and at
least one ask order; and
a program code segment supporting **contracting AC power transfer** on
said **AC power network** to create an agreed **contract** based upon a first
of said bid orders of said order collection and based upon...
...collection comprising a bid type and an ask type;
wherein said program code segment supporting **contracting** said **A C**
power transfer on said **AC power network** to create an agreed **contract**
further
comprises;
a program code segment supporting **contracting** said **AC power transfer**
on said **AC power network** to create an agreed **contract** based upon a
first bid type order of said validated orders of said validated order...
...order collection.

59 A computing system of Claim 58,
 wherein said program code segment supporting **contracting** for said A C
power transfer on said AC power network to create an agreed **contract**
 by a first
 party to own AC **power transfer** trading rights with associated AC
 power
 transfers on each of said **flow gates** of said **flow gate** collection
 further comprises;
 a program code segment supporting **contracting** for said AC **power**
transfer on said AC power network to create an agreed **contract** by a
 first party to own AC **power transfer** trading rights with associated.
 AC power transfers on each of said **flow gates** of said **flow gate**
 collection based upon a first bid type order of said validated orders of
 said validated...

...computing system of Claim 59. wherein at least one market interval is
 associated with each **flow gate** of said **flow gate** collection.

61 A computing system of Claim 60,
 wherein said server system is further comprised...
 ...A method for **contracting** AC power transfer on an AC power network with
 a **flow gate** collection containing at least one **flow gate**
 comprising:
contracting an AC **power transfer** on said AC power network to take
 place
 over a first time interval comprising:
contracting an associated AC **power transfer** on each of said **flow**
gates of said **flow gate** collection to take place over at least said
 first time interval; and
contracting an AC power transfer collection of at least two AC power
 transfers on an AC power network further comprises:
contracting a sum of said associated AC **power transfer** for each of
 said
 AC power transfers of said AC **power transfer** collection on each of
 said **flow gates** of said **flow gate** collection.

2 The method of Claim 62,
 wherein **contracting** for AC **power transfer** on said AC power network
 comprises:
contracting for AC **power transfer** on said AC power network to take
 place
 over a first time interval; and
 wherein **contracting** said associated AC **power transfer** on each of
 said
 flow gates of said flow gate collection comprises
contracting said associated AC **power transfer** on each of said **flow**
gates
 of said **flow gate** collection to take place over at least said first
 time interval.

3 The method of Claim 2, further comprising:
 contracting an AC **power transfer** collection of at least two AC power
 transfers on an AC power network further comprises
contracting a sum of said associated AC **power transfer** for each of
 said
 AC power transfers of said AC **power transfer** collection on each of
 said **flow gates** of said **flow gate** collection.

4 The method of Claim 1 9

wherein each **flow gate** of said **flow gate** collection has an associated maximum safe carrying capacity; and wherein **contracting** said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection on each of said **flow gates** of said **flow gate** collection comprises

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said sum of said associated AC power transfer...

...AC power transfer collection satisfying said associated maximum safe carrying capacity on each of said **flow gates** of said **flow gate** collection.

5 The method of Claim 1, wherein each of said AC power transfers of said AC **power transfer** collection is to take place over a first time interval; and wherein **contracting** said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection on each of said **flow gates** of said **flow gate** collection comprises **contracting** each of said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection to take place at ...said AC power network to a second node of said AC power network; and wherein **contracting** said sum of said associated AC **power transfer** for each of said AC power transfers of said AC **power transfer** collection on each of said **flow gates** of said **flow gate** collection comprises **contracting** an amount of energy of said associated AC **power transfer** on each of said **flow gates** of said **flow gate** collection as essentially an associated linear, skew-symmetric function of said associated amount of energy...

...first node to said associated second node.

9 The method of Claim 1 9 wherein **contracting** for said AC **power transfer** on said AC power network comprises **contracting** for said AC **power transfer** on said AC power network to create an agreed **contract** by a first party to own AC **power transfer** trading rights with associated AC power transfers on each of said **flow gates** of said **flow gate** collection; and enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights.

11 The method of Claim 1 0, wherein enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights comprises

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enabling said first party to further **contract** to sell said first party

owned A C power transfer trading rights before scheduling said AC power transfer for said agreed contract .

13 The method of Claim 12,
wherein determining whether said associated AC power transfer of said flow gate of said flow gate collection satisfies said associated maximum safe carrying capacity of said flow gate for each of said flow gates of said flow gate collection further comprises
determining whether said associated AC power transfer of said flow gate
i o of said flow gate collection satisfies said associated maximum safe carrying capacity of said flow gate for each of said flow gates of said flow gate collection
over said first time interval; and
wherein approving said AC power transfer whenever said associated A C power transfer of said flow gate satisfies said maximum safe carrying capacity for
15 each said flow gate of said flow gate collection further comprises
approving said AC power transfer over said first time interval whenever said associated AC power transfer of said flow gate satisfies said maximum safe carrying capacity for each said flow gates of said flow gate collection over said first time interval.

14 The method of Claim 13, further comprising:
contracting for an AC power transfer collection of at least one AC power transfer to create an agreed contract by a first party to own AC power transfer trading rights with associated AC power transfers on each of said flow gates of said flow gate collection further compdses
contracting for a sum of associated AC power transfers for all AC power transfers of said AC power transfer collection to create a contract for an associated AC power transfer for said collection of AC power transfers for each of said flow gates of said flow gate collection.

15 The method of Claim 14,
wherein each of said AC power transfers of...

...of
said AC power network to said second node of said AC power network;
wherein contracting for a sum of associated AC. power transfers for all A C power transfers of said AC power transfer collection to create a contract for an associated AC power transfer for said collection of AC power transfers for each
of said flow gates of said flow gate collection comprises

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calculating said associated AC power transfer on said flow gate of said

AC power transfer as an amount of energy which is an essentially linear

...
...transfer to said associated second node of said AC power transfer of each of said flow gates of said flow gate collection.

16 The method of Claim 9,
wherein enabling said first party to further contract to sell said first party

owned AC power transfer trading rights further comprises
I 0 enabling said first party to further contract to sell said first
party owned A C power transfer trading rights for said associated AC
power transfer for a first of said flow gates of said flow gate
collection.

17 The method of Claim 16,
wherein enabling said first party to further contract to sell said
first party

1 5 owned AC power transfer trading rights further comprises
enabling said first party to further contract to sell said first party
owned A C power transfer trading rights for said associated AC power
transfer for each of said flow gates of said flow gate
collection.

23 The method of Claim 22, further comprising:
a first client user operating said...

...interactive status based upon said received stimulus stream
and said received server stream; and
wherein contracting said AC power transfer on said AC power network
further comprises
communicating via said network with said first client computer to create
a received server delivery stream.

24 The method of Claim 23,
wherein contracting AC power transfer on said AC power network
further
comprises

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operating a virtual trading floor containing a market for trading AC
power transfer for each of said flow gates of said flow gate
collection further comprising transforming said received server delivery
stream into an order collection
containing at least one bid order and at least one ask order, and
contracting AC power transfer on said AC power network to create an
agreed contract based upon a first of said bid orders of said order
collection and based upon...

...with

program code segments contmcting AC power tmnsfer on an AC power
network with a flow gate collection containing at least one flow
gate , comprising:

a program code segment supporting contracting an AC power transfer
on
said AC power network to take place over a first time interval
comprising:

1 5 a program code segment supporting contracting an associated AC
power

transfer on each of said flow gates of said flow gate
collection to take place over

at least said first time interval; and

a program code segment supporting contracting an AC power transfer
collection of at least two AC power transfers on an AC power network to
take

place over said first time interval further comprises:

a program code segment supporting contracting a sum of said associated
AC power transfers for each of said AC power transfers of said AC power
transfer collection on each of said flow gates of said flow gate

collection to take place at least over at least said first time.

26 The program operating system of Claim 63,
wherein said program code segment supporting **contracting** an AC **power transfer** on said AC power network comprises
a program code segment supporting **contracting** an AC **power transfer** on
said AC power network to take place over a first time interval; and
wherein said program code segment supporting **contracting** said
associated AC **power transfer** on each of said **flow gates** of said
flow gate
collection comprises
a program code segment supporting **contracting** said associated A C
power transfer on each of said **flow gates** of said **flow gate**
collection to take place over at least said first time interval.

28 The program operating system of Claim 25,
63

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wherein each **flow gate** of said **flow gate** collection has an
associated
maximum safe carrying capacity; and
wherein said program code segment supporting **contracting** said sum of
said associated AC **power transfer** for each of said AC power transfers
of said AC **power transfer** collection on each of said **flow gates**
of said **flow gate**
collection comprises
a program code segment supporting said sum of said associated AC
power transfer...

...power transfer collection satisfying said associated maximum safe
carrying capacity on each of io said **flow gates** of said **flow gate**
collection.

29 The program operating system of Claim 27,
wherein each of said AC power transfers of said AC **power transfer**
collection is to take place over a first time interval; and
wherein said program code segment supporting **contracting** said sum of
1 5 said associated AC **power transfer** for each of said AC power
transfers of said AC **power transfer** collection on each of said **flow**
gates of said **flow gate**
collection comprises
a program code segment supporting **contracting** said sum of said
associated AC **power transfer** for each of said AC power transfers of
said AC **power transfer** collection to take place at least over at
least said first time interval on each of said **flow gates** of said
flow gate collection.

30 The program operating system of Claim 25,
wherein each of said AC power...

...to a second node of said AC power network; and
said program code segment supporting **contracting** said sum of said
associated AC **power transfer** for each of said AC power transfers of
said A C **power transfer** collection on each of said **flow gates** of
said **flow gate** collection
comprises
a program code segment essentially calculating an amount of energy of
said associated AC power transfer on each of said **flow gates** of said
flow gate collection as essentially an associated linear,

skew-symmetric function of said associated amount of energy...

...node.

33 The program operating system of Claim 25,
wherein said program code segment supporting **contracting** for said A C
power transfer on said AC power network further comprises

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a program code segment supporting **contracting** for said AC **power transfer** on said AC power network to create an agreed **contract** by a first party to own AC **power transfer** trading rights with associated AC power transfers on each of said **flow gates** of said **flow gate** collection; and a program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights.

34 The program operating system of Claim 33,
wherein each of said **flow gates** of said **flow gate** collection has an associated maximum safe carrying capacity; and further comprising a program code segment supporting scheduling said AC **power transfer** for said agreed **contract** comprising a program code segment supporting determining whether said associated AC **power transfer** of said **flow gate** of said **flow gate** collection satisfies said associated maximum safe carrying capacity of said **flow gate** for each of said **flow gates** of said **flow gate** collection; and a program code segment supporting approving said AC power transfer whenever said associated AC power transfer of said **flow gate** satisfies said maximum safe carrying capacity for each said **flow gates** of said **flow gate** collection.

20 37. The program operating system of Claim 36,
wherein determining whether said associated AC power transfer of said **flow gate** of said **flow gate** collection satisfies said associated maximum safe carrying capacity of said **flow gate** for each of said **flow gates** of said **flow gate** collection further comprises determining whether said associated AC power transfer of said **flow gate** of said **flow gate** collection satisfies said associated maximum safe carrying capacity of said **flow gate** for each of said **flow gates** of said **flow gate** collection over said first time interval; and wherein approving said AC power transfer whenever said associated A C power transfer of said **flow gate** satisfies said maximum safe carrying capacity for each of said **flow gates** of said **flow gate** collection further comprises approving said AC power transfer over said first time interval whenever said associated AC power transfer of said **flow gate** satisfies said maximum safe carrying capacity for each said **flow gates** of said **flow gate** collection over said first time interval.

38 The program operating system of Claim 37, further comprising:

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a program code segment supporting **contracting** for an AC **power transfer** on said AC power network further comprising

collection of at least one AC power transfer to create an agreed contract by a first party to own AC power transfer trading rights with associated AC power transfers on each of said flow gates of said flow gate collection. further comprises a program code segment supporting contracting for a sum of associated AC power transfers for all AC power transfers of said AC power

transfer

collection to create a contract for an associated AC power transfer for said collection of AC power transfers for each of said flow gates of said flow gate collection.

I o 39. The program operating system of Claim 38, wherein each of said...

...to said second node of said AC power network; wherein a program code segment supporting contracting for a sum of associated AC power transfers for all AC power transfers of said AC power transfer collection to create a contract for an associated AC power transfer for said collection of AC power transfers for each of said flow gates of said flow gate collection comprises a program code segment calculating each of said associated AC power transfers on said flow gate of said AC power transfer has an amount of energy as an essentially linear, skew...

...node to said associated second node of said AC power transfer of each of said flow gates of said flow gate collection.

40 The program operating system of Claim 33, wherein said program code segment supporting enabling said first party to further contract to sell said first party owned AC power transfer trading rights further comprises a program code segment supporting enabling said first party to further contract to sell said first party owned AC power transfer trading rights for said 3o associated AC power transfer for a first of said flow gates of said flow gate collection.

41 The program operating system of Claim 40, wherein said program code segment supporting enabling said first party to further contract to sell said first party owned AC power transfer trading rights further comprises

a program code segment supporting enabling said first party to further contract to sell said first party owned AC power transfer trading rights for said

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associated AC power transfer for each of said flow gates of said flow gate collection.

45 The program operating system of Claim 25, wherein said computing system is further...

...of said server computers of said server system; and wherein said program code segment supporting contracting said AC power transfer on said AC power network further comprises a program code segment residing in said computer...

...received stimulus stream and said received server stream; and wherein said program code segment supporting **contracting** said A C **power transfer** on said AC power network further comprises a program code segment supporting communicating via said....

...stream.

47 The program operating system of Claim 46, wherein said program code segment supporting **contracting** AC **power transfer** on said AC power network further comprises

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a program code...

...trading floor

containing a market interval for trading AC power transfer for each of said **flow**

gates of said **flow gate** collection further comprising a program code segment supporting transforming said received server delivery stream into...collection.

49 The program operating system of Claim 48,

wherein supporting **contracting** for said AC **power transfer** on said A C power network to create an agreed **contract** by a first party to own AC **power transfer** trading rights with associated AC power transfers on each of said **flow**

1 5 **gates** of said **flow gate** collection further comprises

a program code segment supporting **contracting** for said AC **power**

transfer on said AC power network to create an agreed **contract** by a first party to own AC **power transfer** trading rights with associated AC power transfers on each of said **flow gates** of said **flow gate** collection based upon a first bid type order of said validated orders of said validated...

...A computing system supporting program operating system of program code segments with program code segments **contracting** an AC **power transfer** on an AC power network with a **flow gate** collection containing at least one **flow**

gate, comprised of:

at least one computer, each of said computers in said computing system coupled...

...in said computing system;

wherein said program operating system contains a program code segment supporting **contracting** an AC **power transfer** on said AC power

network further to take place over a first time interval comprising:

a program code segment supporting **contracting** an associated AC **power**

transfer on each of said **flow gates** of said **flow gate**

collection to take place over

at least said first time interval; and

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a program code segment supporting **contracting** an AC **power transfer** collection of at least two AC power transfers on an AC power network to take

place over said first time interval; further comprises

a program code segment supporting **contracting** a sum of said associated

AC power transfers for each of said AC power transfers of said AC **power transfer** collection on each of said **flow gates** of said **flow gate** collection to take place at least over at least said first time.

53 A computing system of Claim 52, wherein said program code segment supporting **contracting** for said AC **power transfer** on said AC power network further comprises a program code segment supporting **contracting** for said AC **power transfer** on said AC power network to create an agreed **contract** by a first party to own AC **power transfer** trading rights with associated AC power transfers on each of said **flow gates** of said **flow gate** collection; and a program code segment supporting enabling said first party to further **contract** to sell said first party owned AC **power transfer** trading rights.

54 A computing system of Claim 53, wherein each of said **flow gates** of said **flow gate** collection has an associated maximum safe carrying capacity; and said program operating system further containing...

...comprising a program code segment supporting determining whether said associated AC power transfer of said **flow gate** of said **flow gate** collection satisfies said associated maximum safe carrying capacity of said **flow gate** for each of said **flow gates** of said **flow gate** collection; and a program code segment supporting approving said AC power transfer whenever said associated AC power transfer of said **flow gate** satisfies said maximum safe carrying capacity for each said **flow gates** of said **flow gate** collection.

56 A computing system of Claim 55, wherein said program operating system further comprising...

...received stimulus stream and said received server stream; and wherein said program code segment supporting **contracting** said AC **power transfer** on said AC power network further comprises a program code segment supporting communicating via said...

...i o 57. A computing system of Claim 56, wherein said program code segment supporting **contracting** AC **power transfer** on said AC power network further comprises a program code segment supporting operating a virtual trading floor containing a market interval for trading AC power transfer for each of said **flow gates** of said **flow gate** collection further comprising a program code segment supporting transforming said received server delivery stream into...

...one bid order and at least one ask order, and a program code segment supporting **contracting** AC **power transfer** on said AC power network to create an agreed **contract** based upon a first of said bid orders of said order collection and based upon...

...collection comprising a bid type and an ask type; wherein said program code segment supporting **contracting** said AC **power transfer** on said AC power network to create an agreed **contract**

further
comprises
a program code segment supporting **contracting** said AC power transfer

on said AC power network to create an agreed **contract** based upon a first bid type order of said validated orders of ...order collection.

59 A computing system of Claim 58,
wherein said program code segment supporting **contracting** for said AC power transfer on said AC power network to create an agreed **contract** by a first party to own AC power transfer trading rights with associated AC power transfers on each of said flow gates of said flow gate collection further comprises

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a program code segment supporting **contracting** for said AC power transfer on said AC power network to create an agreed **contract** by a first party to own AC power transfer trading rights with associated AC power transfers on each of said flow gates of said flow gate collection based upon a first bid type order of said validated orders of said validated...

...type order of said validated orders of said validated order collection.

62 A method for **contracting** AC power transfer on an AC power network with

a flow gate collection containing at least one flow gate comprising:

contracting an AC power transfer on said AC power network comprising

I 0 **contracting** an associated AC power transfer on each of said flow gates of said flow gate collection.

63 A program operating system executing on a computing system comprised of at least...

...said computing system coupled to an associated computer readable memory, supporting with

program code segments **contracting** AC power transfer on an AC power network with a flow gate collection containing at least one flow

gate, comprising:

a program code segment supporting **contracting** an AC power transfer on

said AC power network comprising

a program code segment supporting **contracting** an associated AC power transfer on each of said flow gates of said flow gate collection.

64 A computing system supporting program operating system of program code segments with program code segments **contracting** an AC power transfer on an AC power network with a flow gate collection containing at least one flow

gate, comprised of:

at least one computer, each of said computers in said computing system coupled...

...in said computing system;

wherein said program operating system contains a program code segment supporting **contracting** an AC **power transfer** on said AC power network further comprising a program code segment supporting **contracting** an associated AC **power transfer** on each of said **flow gates** of said **flow gate** collection.

7 1

AMENDED SHEET (ARTICLE 19)

Amendment under Article 19 U1

Claims 62 to...

3/KWIC/8 (Item 8 from file: 349)

DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... that different transformers may have differing transformer capacity limits.

These constrained flow elements are called **flow gates**. In the last few years the importance of **flow gates** has begun to emerge through the actions of

NERC, which has been responsible for building a model estimating **flow gate** impact, which can be downloaded from their web site.

io A **flow gate** of a given AC power network will refer herein to a collection of at least...

...network.

All lines have maximum safe carrying capacities and thus could be considered 1 5 **flow gates**, of a sort. However, historical congestion analysis of specific AC power networks reveals that only a small number of **flow gates** account for almost all congestion problems. Such **flow gates** will be herein referred to as significant **flow gates**.

The associated AC power transfer across a given **flow gate** is additive due to

the super positioning effects previously discussed. Thus in sending 100 megawatts along a path, the transmission may have a 1 0% impact on the **flow gate**, putting 10 megawatts on the **flow gate**. A second generator may have a

5% impact on that **flow gate**. Generating 100 megawatt at the second generator would add 5 across the **flow gate**.

Figure I depicts an exemplary AC power network based upon contemporary AC power technology as...an essentially linear effect on all transmission lines in the network, and consequently impact all **flow gates** within that network to some extent.

This contract path system of scheduling power transmission reserves... making up the direct path. It often occurs that some constraint,

occurring across a significant **flow gate** off that direct path, actually limits the transmission capability on the direct path.

00

The...

...to

purchase separately transmission from A to C. this is because there might be some **flow gate** constraint which would not be met in the two separate paths which would be triggered...are issued across apparently irrelevant contracted paths to compensate. The central operator acts, because a **flow gate** will overflow, forbidding transmission often across apparently irrelevant paths to compensate.

Another alternative approach is...

...to imagine that such a situation could be optimal.

NERC has developed a methodology addressing **flow gates** to some extent.

3o This is discussed in a document entitled "Discussion Paper on Aligning ...

...shift to a system of reserving and scheduling transmission based on actual use of congested **flow gates**, which they called the FLOWBAT method. Their proposal suffers from a serious omission, it does not address the issue of allocating **flow gate** capacity when demand exceeds supply. By their silence on this issue, it appears that they...

...case called Transaction Participation Functions (TPFs).

These distribution functions refer to transmission paths rather than **flow gates**.

GAPP attempts to align compensation paid by transmission users with actual power flows. However, GAPP...

...the physics of AC power networks. Further, since transmission rights are predominantly constrained by significant **flow gates**, what is needed should account for the effect on the significant **flow gates** for each contracted transmission. A method and mechanism is needed for trading generation and transmission...further embodiments include an AC power network in the electrical power grid further containing a **flow gate** collection. For each **flow gate** of the **flow gate** collection, there is at least one market interval with AC power transfer product type and location of the **flow gate**. Such embodiments advantageously provide a trading mechanism for AC power transfers across **flow gates**, which is in keeping with the physical characteristics of AC power networks. Note that again...

...these market intervals are markets for ephemeral, fungible commodities, AC power transfer effects across a **flow gate** during a time interval.

io Certain other further embodiments includes electrical power grids further containing...computer showing an ordering screen for hourly time.

interval based market intervals for a specific **flow gate** market in accordance with certain embodiments.

Detailed Description of the Invention

Figure 3A depicts a...are not limited to acoustic interfaces to humans, audio and visual identification portals to the **contracting**

of AC **power transfer** regarding **flow gates**, encoding and decoding mechanisms used in long distance communication and interfaces to recording devices of agreed **contracts**.

A program code segment as used herein refers to instructions in a form executable or...an Energy product type 1 1 1 0. The location 1 1 12 is a **flow gate** of the **flow gate** collection of a first AC power network contained in the electrical power grid. Note that **flow gates** can represent a congestion constraint across more than one transmission line, and may not have...

...networks indicates each AC power network contained in the electrical power grid further contains a **flow gate** collection of **flow gates**. Each **flow gate** location being either from an associated first node of the AC power network to an...

...in the case of a collection of constrained transmission lines, will be denoted by a **flow gate** designator. An AC power transfer amount from node1 to node2 produces an amount of AC power transfer across the **flow gate** as essentially an associated linear, skewsymmetric function of the amount from node1 to node2 for each of the **flow gates** of the **flow gate** collection. For each of the **flow gates** of the **flow gate** collection, there is at least one market interval in the market interval collection of AC power transfer product type with the **flow gate** location.

In certain embodiments, each validated order of the validated order collection is with the...

...first node to the second node is further comprised of a validated order of the **flow gate** associated market interval. The amount ordered for that **flow gate** is essentially the associated linear, skew-symmetric function of the amount from the first node to the second node, for each of the **flow gates** of the **flow gate** collection.

Note that in certain further embodiments, there is a price associated with each validated order of the AC power transfers of the **flow gates**. In certain further embodiments, there is a price associated with the AC power transfer from...

...of an AC power network. Assume that AC power network has a collection of three **flow gates**.

is A validated order for an AC power transfer amount from node1 to node2 may contain validated orders for an associated amount for each **flow gate** of the

flow gate collection. Each of the **flow gate** validated orders may contain prices for their respective **flow gate**. The agreed amount would be calculated based upon the associated amounts and pricing of the **flow gates**. In certain 1 5 other embodiments, all validated orders have a price associated with them...by the first party to act on behalf of the first party with respect to **contracting the AC power transfer**.

Server system 3500 includes at least one server computer 3520 coupled to network 3200. Network...by the first party to act on behalf of the first party with respect to **contracting the AC power transfer**.

As shown in Figure 1 5, server system 3500 includes at least one server computer...computer showing an ordering screen for hourly time interval based market intervals for a specific **flow gate** market in accordance with certain embodiments.

The displayed information 4200 includes a variety of fields, including field 4202, where a specific **flow gate** or intertie may be selected. Immediately below that field is a field which specifies commodity...

...entries from 1 to 24, indicating the hourly AC power transfer markets 4204 in the **flow gate** location "COCOPP Unit 1" 4202. Consider the row labeled by the hour 4208 ending at...

...row displays the market state of the market interval with AC power transfer product type, **flow gate** io 4202 location and hour time interval ending at 1:00 for May 10, 1999...

Claim

... 2,

wherein an AC power network contained in said electrical power grid further contains a **flow gate** collection of **flow gates**, each ☐ **flow gate** location being from an associated first node of said AC power network to an associated second node of said AC power network; wherein for each of said **flow gates** of said **flow gate** collection, there is at least one associated market interval in said market interval collection of AC power transfer product type with said **flow gate** location.

4 The method of Claim 1, wherein said electrical power grid further contains a...18, wherein an AC power network contained in said electrical power grid further contains a **flow gate** collection of **flow gates**, each ☐ **flow gate** location being from an associated first node of said AC power network to an associated second node of said AC power network; wherein for each of said **flow gates** of said **flow gate** collection, there is at least one associated market interval in said market interval collection of AC power transfer product type with said **flow gate** location.

20 The program operating system of Claim 17, wherein said electrical power grid further...34, wherein an AC power network contained in said electrical power grid further contains a **flow gate** collection of **flow gates**, each ☐ **flow gate** location being from an associated first node of said AC power network to an associated second node of said AC power network; wherein for each of said **flow gates** of said **flow gate** collection, there is at least one associated market interval in said market interval collection of AC power transfer product type with said **flow gate** location.

36 The computing system of Claim 33, wherein said electrical power grid further contains...

